

Bellwork: 11/14/12

Convert the following to vertex form. Then graph.

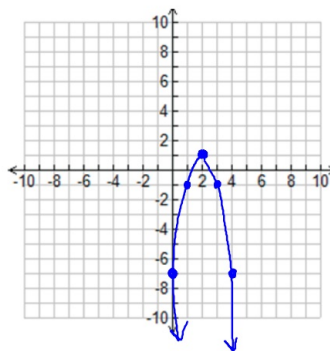
$$y = -2x^2 + 8x - 7$$

$$a = -2 \quad b = 8 \quad c = -7$$

Vertex:

$$\begin{array}{l} \text{xvalue} \\ \frac{-b}{2a} = \frac{-8}{2(-2)} = \frac{-8}{-4} = 2 \end{array} \left\{ \begin{array}{l} \text{yvalue} \\ -2(2)^2 + 8(2) - 7 \\ -8 + 16 - 7 \\ 8 - 7 \\ 1 \end{array} \right.$$

$$y = -2(x-2)^2 + 1$$



$$y = -x^2 + 2x + 2$$

$$a = -1 \quad b = 2 \quad c = 2$$

vertex:

$$\begin{array}{l} \text{xvalue} \\ \frac{-b}{2a} = \frac{-2}{2(-1)} = \frac{-2}{-2} = 1 \end{array} \left\{ \begin{array}{l} \text{yvalue} \\ -(1)^2 + 2(1) + 2 \\ -1 + 2 + 2 \\ 1 + 2 \\ 3 \end{array} \right.$$

vertex: (1, 3)

$$a = -1$$

$$y = -(x-1)^2 + 3$$

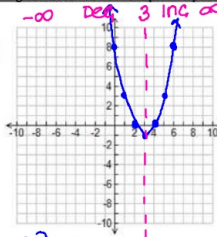
Convert each of the following to vertex form. Graph the parabola, then complete the box.

1) $y = x^2 - 6x + 8$

$a = 1$ $b = -6$ $c = 8$

vertex:

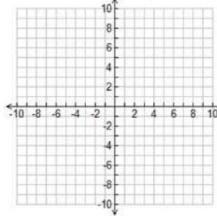
$x \text{ value} = \frac{-b}{2a} = \frac{6}{2(1)} = 3$ } $y \text{ value} = 3^2 - 6(3) + 8 = 9 - 18 + 8 = -1$



Domain $(-\infty, \infty)$
Range $[-1, \infty)$
Max/Min $(3, -1)$
Increasing $(3, \infty)$
Decreasing $(-\infty, 3)$
cross x axis $(2, 0) + (4, 0)$
cross y axis $(0, 8)$

Vertex form: $y = (x - 3)^2 - 1$

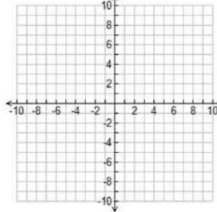
2) $y = -2x^2 + 4x + 6$



Domain _____
Range _____
Max/Min _____
Increasing _____
Decreasing _____
x-intercept _____
y-intercept _____

Vertex form: _____

3) $y = x^2 + 6x + 11$



Domain _____
Range _____
Max/Min _____
Increasing _____
Decreasing _____
x-intercept _____
y-intercept _____

Vertex form: _____